

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**

(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.  
15436.434.3.1In Re Application Of: **Johnson**

JUN 07 2006

Application No.

Filing Date

Examiner

Customer No.

Group Art Unit

Confirmation No.

10/634,558

August 4, 2003

Phillip Nguyen

022913

2828

6028

Title: **MECHANICAL STABILIZATION OF LATTICE MISMATCHED QUANTUM WELLS**

Address to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**37 CFR 1.97(b)**

1. ☐ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

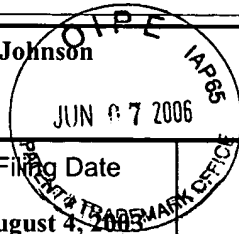
2. ☒ The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:

☐ the statement specified in 37 CFR 1.97(e);**OR**☒ the fee set forth in 37 CFR 1.17(p).

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.  
15436.434.3.1

In Re Application of: Johnson



Application No. 10/634,558	Filing Date August 4, 2005	Examiner Phillip Nguyen	Customer No. 022913	Group Art Unit 2828	Confirmation No. 6028
-------------------------------	-------------------------------	----------------------------	------------------------	------------------------	--------------------------

Title: **MECHANICAL STABILIZATION OF LATTICE MISMATCHED QUANTUM WELLS**

**Payment of Fee**

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

- ☐ A check in the amount of \_\_\_\_\_ is attached.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. 23-3178 as described below.
- ☐ Charge the amount of \_\_\_\_\_
- ☒ Credit any overpayment.
- ☒ Charge any additional fee required.
- ☒ Payment by credit card. Form PTO-2038 is attached.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

**Certificate of Transmission by Facsimile\***

I certify that this document and authorization to charge deposit account is being facsimile transmitted to the United States Patent and Trademark Office (Fa
_____ (Date)
_____ Signature
_____ Typed or Printed Name of Person Signing Certificate

**Certificate of Mailing by First Class Mail**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on
_____ (Date)
_____ Signature of Person Mailing Correspondence
_____ Typed or Printed Name of Person Mailing Certificate

\*This certificate may only be used if paying by deposit account.


Signature

Dated: June 7, 2006

Peter F. Malen, Jr.  
Attorney for Applicant  
Reg. No. 45,576  
Telephone No. 801-533-9800

CC:

IRW /



~~TRADE MARK~~  
In Application of:

Examiner: Phillip Nguyen

)  
)  
)  
)  
)  
) Art Unit  
) 2828  
)  
)  
)  
)  
)  
)  
)  
)

## 1

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the enclosed art is the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

Except as noted elsewhere herein, and in accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each of the listed references or relevant portion thereof is also enclosed.

In accordance with 37 C.F.R. § 1.98(c), all English translations within the possession, custody, control or availability of anyone designated in 37 C.F.R. § 1.56(c) of each non-English reference, if any, are also enclosed.

Statement of Relevance of References Listed  
Unaccompanied by English Translation  
Under 37 C.F.R. § 1.98(a)(3)

In accordance with 37 C.F.R. § 1.98(a)(3), the following concise explanation of the relevance of each listed reference that is not in the English language and unaccompanied by a translation into English is provided.

As presently understood by the Applicant, the German language reference by Harth W., *Sende- und Empfangsdioden für die Optische Nachrichtentechnik*, B.G. Teubner Stuttgart 1984, is generally concerned with sending and receiving diodes for optical information technology. More particularly, the reference is concerned with laser diodes and optical detectors used in optical transmission systems and applications. At least some of the disclosed lasers employ a GaAs substrate.

Since all other listed references are either in the English language or are accompanied by at least a partial translation into English, no concise explanation of relevance is required for such other references under 37 C.F.R. § 1.98(a)(3).

Statement of References Previously Disclosed  
Under 37 C.F.R. § 1.98 (d)

The references listed as numbers 29-31 and 38-45, in the attached USPTO-1449 forms are not enclosed because, under 37 C.F.R. § 198 (d), they were previously cited by or submitted to the Office in application number 09/217,223, filed on December 21, 1998, which is relied upon for an earlier filing date under 35 U.S.C. § 120.

Submission Fee  
Under 37 C.F.R. § 1.97(c))

In accordance with 37 C.F.R. § 1.97(c), payment in the amount of \$180.00 [amount in § 1.17(i)(1)] to cover the submission fee is enclosed to secure consideration of the references submitted with this Information Disclosure Statement. Please credit any over payment or charge any additional fees to Deposit Account No. 23-3178 of the undersigned.

Dated this 17<sup>th</sup> day of June, 2006.

Respectfully submitted,



Peter F. Malen, Jr.  
Attorney for Applicant  
Registration No. 45,576  
Customer No. 022913  
Telephone No. 801-533-9800

**CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)**Applicant(s): **Johnson**

Docket No.

**15436.434.3.1**

Application No.

**10/634,558**

Filing Date

**August 4, 2003**

Examiner

**Phillip Nguyen**

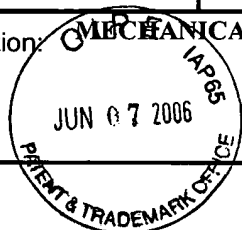
Customer No.

**022913**

Group Art Unit

**2828**

Invention:

**MECHANICAL STABILIZATION OF LATTICE MISMATCHED QUANTUM WELLS**

I hereby certify that the following correspondence:

**Information Disclosure Statement (3 pgs); Form 1449 (5 pgs); copies of 6 references; IDS Transmittal Letter (2 pgs in duplicate); Credit Card Payment Form and postcard***(Identify type of correspondence)*

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

June 7, 2006*(Date)*Gina Meredith*(Typed or Printed Name of Person Mailing Correspondence)*

A handwritten signature in cursive script, appearing to read "Gina Meredith".

*(Signature of Person Mailing Correspondence)*EV 758426839 US*("Express Mail" Mailing Label Number)***Note: Each paper must have its own certificate of mailing.**

Applicant: Johnson

Serial No.: 10/634,558

Att'y Docket No.: 15436.434.3.1

Filing Date: August 4, 2003

Group: 2828

MECHANICAL STABILIZATION OF LATTICE MISMATCHED  
QUANTUM WELLSINFORMATION DISCLOSURE CITATIONS MADE BY APPLICANTU.S. Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Issue Date</u>	<u>Name</u>
___ 1	4,603,340	07/1986	Dil
___ 2	4,644,378	02/1987	Williams
___ 3	4,787,089	11/1988	Hayakawa et al.
___ 4	5,040,186	08/13/1991	Logan et al.
___ 5	5,229,627	07/1993	Kosaka
___ 6	5,251,225	10/05/1993	Eglash
___ 7	5,316,968	06/31/1994	Choquette
___ 8	5,371,387	12/1994	Ando
___ 9	5,373,166	12/13/1994	Buchan et al.
___ 10	5,381,434	01/10/1995	Bhat et al
___ 11	5,383,211	01/17/1995	Van de Walle et al
___ 12	5,408,487	04/1995	Uchida et al.
___ 13	5,432,809	07/11/1995	Grodzinski et al.
___ 14	5,491,710	02/1996	Lo
___ 15	5,493,577	02/20/1996	Choquette et al.
___ 16	5,557,627	09/17/1996	Schneider Jr. et al.

Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant: Johnson  
 Serial No.: 10/634,558  
 Filing Date: August 4, 2003  
 For: MECHANICAL STABILIZATION OF LATTICE MISMATCHED QUANTUM WELLS

Att'y Docket No.: 15436.434.3.1  
 Group: 2828

_____ 17	5,559,818	09/24/1996	Shono et al
_____ 18	5,583,351	12/10/1996	Brown et al
_____ 19	5,671,242	09/23/1997	Takiguchi et al
_____ 20	5,719,894	02/17/1998	Jewell et al
_____ 21	5,719,895	02/17/1998	Jewell et al.
_____ 22	5,757,833	05/26/1998	Arakawa et al.
_____ 23	5,780,867	07/1998	Fritz et al
_____ 24	5,825,796	10/20/1998	Jewell et al.
_____ 25	6,252,894	06/26/2001	Sasanuma et al.
_____ 26	6,359,920	03/19/2002	Jewell et al
_____ 27	6,363,092	03/26/2002	Botez et al

#### Foreign Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Publication Date</u>	<u>Country or Patent Office</u>
_____ 28	0 428 913 A2	05/29/1991	EP
_____ 29	0 606 821	07/20/1994	EP
_____ 30	08 139404	05/31/1996	JP
_____ 31	PCT/US 99/26496	03/20/2000	PCT

---

 Examiner:

---

 Date Considered:

---

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

---



Applicant: Johnson  
Serial No.: 10/634,558 Att'y Docket No.: 15436.434.3.1  
Filing Date: August 4, 2003 Group: 2828  
For: MECHANICAL STABILIZATION OF LATTICE MISMATCHED  
QUANTUM WELLS

Other Documents

(including author, title, pertinent pages, etc.)

Examiner

Initial\*

- \_\_\_\_\_ 32 Lutgen, S. "Strukturelle und optische Eigenschaften von symmetrisch verspannten (AlGaIn)As/Ga(PAs)-Übergittern [Structural and optical properties of symmetrically strained (AlGaIn)As/Ga(PAs) superlattices]", Dissertation at Marburg University (1993).
- \_\_\_\_\_ 33 Lutgen, S., et al, "Optical properties of symmetrically strained (GaIn)As/Ga(Pas) superlattices grown by metalorganic vapour phase epitaxy", Solid State Electronics, Vol. 37, Nos. 4-5, pp. 905-909 (1994).
- \_\_\_\_\_ 34 Lutgen, S., et al., "Metal-organic vapour phase epitaxial growth of symmetrically strained (GaIn)As/Ga(Pas) superlattices", Materials Science and Engineering B21, pp. 249-252 (1993)
- \_\_\_\_\_ 35 Lutgen, S., et al. "Carrier effective mass in symmetrically strained (GaIn)As/Ga(Pas) multiple-quantum-well structures", Phys. Rev. B, Vol. 52, No. 15, pp. 11096-11104, (1995).
- \_\_\_\_\_ 36 Sze, S.M., "Physics of Semiconductor Devices", Wiley & Sons 2<sup>nd</sup> Edition, 1981, pp. 704-742
- \_\_\_\_\_ 37 Harth, W., et al "Sende- und Empfangsdioden für die optische Nachrichtentechnik [Sending and receiving diodes for optical information technology], Teubner, 1984, pp. 84-120.
- \_\_\_\_\_ 38 "Low Threshold 1.57  $\mu\text{m}$  VC-SEL's Using Strain-Compensated Quantum Wells and Oxide/Metal Backmirror," Chua et al., IEEE Photonics Technology letters 7 (1995) May, No. 5, pp. 444-446.
- \_\_\_\_\_ 39 H. Sohn, et al. "A New Approach to Grown Strain-Free GAAS on SI", Materials Research Society Symposium Proceedings, 1 January 1991, XP000578836, Figure 4

Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant: Johnson  
Serial No.: 10/634,558 Att'y Docket No.: 15436.434.3.1  
Filing Date: August 4, 2003 Group: 2828  
For: MECHANICAL STABILIZATION OF LATTICE MISMATCHED  
QUANTUM WELLS

- \_\_\_\_\_ 40 Campbell, J.C., et al, "Quantum dot resonant cavity photodiode with operation near 1.3  $\mu\text{m}$  wavelength", magazine article, 17 July 1997, pps. 1337-1339, Electronics Letters, Vol. 33, No. 15.
- \_\_\_\_\_ 41 Corzine, S.W., "Design of Vertical-Cavity Surface-Emitting Lasers with Strained and unstrained quantum Well Active Regions", ECE Technical Report #93-09, May 1993, University of California at Santa Barbara.
- \_\_\_\_\_ 42 Miller, B.I., et al., "Strain-compensated strained-layer superlattices for 1.5  $\mu\text{m}$  wavelength lasers", magazine article, 6 May 1991, pps. 1952-1954, Appl. Phys. Lett. 58 (18), American Institute of Physics.
- \_\_\_\_\_ 43 Mirin, R.P., et al., "1.3  $\mu\text{m}$  photoluminescence from InGaAs quantum dots on GaAs", magazine article, 18 December 1995, pps. 3795-3797, Appl. Phys. Lett. 67 (25), American Institute of Physics.
- \_\_\_\_\_ 44 Orenstein, M., et al., "Vertical-cavity surface emitting InGaAs/GaAs lasers with planar lateral definition", magazine article, 11 June 1990, pps. 2384-2386, Appl. Phys. Lett. 56 (24), American Institute of Physics.
- \_\_\_\_\_ 45 Peter, M., et al., "Realization and modeling of pseudomorphic  $(\text{GaAs}_{1-x}\text{Sb}_x\text{In}_y\text{Ga}_{1-y}\text{As})/\text{GaAs}$  bilayer-quantum well", magazine article, 30 October 1995, pps. 2639-2641, Appl. Phys. Lett. 67 (18), American Institute of Physics.

### References Cited by Applicants

While the filing of Information Disclosure Statements is voluntary, the procedure is governed by the guidelines of Section 609 of the Manual of Patent Examining Procedure and 37 C.F.R. §§ 1.97 and 1.98. To be considered a proper Information Disclosure Statement, Form PTO-1449 shall be accompanied by a copy of each listed patent or publication or other item of information and a translation of the pertinent portions of foreign documents (if an existing translation is readily available to the applicant), an explanation of relevance of each reference not in the English language, and should be submitted in a timely manner as set out in MPEP Sec. 609.

---

Examiner:

Date Considered:

---

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

---

Applicant: Johnson  
Serial No.: 10/634,558 Att'y Docket No.: 15436.434.3.1  
Filing Date: August 4, 2003 Group: 2828  
For: MECHANICAL STABILIZATION OF LATTICE MISMATCHED  
QUANTUM WELLS

Examiners will consider all citations submitted in conformance with 37 C.F.R. § 1.98 and MPEP Sec. 609 and place their initials adjacent the citations in the spaces provided on this form. Examiners will also initial citations not in conformance with the guidelines which may have been considered. A reference may be considered by the Examiner for any reason whether or not the citation is in full conformance with the guidelines. A line will be drawn through a citation if it is not in conformance with the guidelines AND has not been considered. A copy of the submitted form, as reviewed by the Examiner, will be returned to the applicant with the next communication. The original of the form will be entered into the application file.

Each citation initialed by the Examiner will be printed on the issued patent in the same manner as references cited by the Examiner on Form PTO-892.

The reference designations "A1," "A2," etc. (referring to Applicant's reference 1, Applicant's reference 2, etc.) will be used by the Examiner in the same manner as Examiner's reference designations "A," "B," "C," etc. on Office Action Form PTO-1142.

GPM0000002287V001

---

Examiner:

Date Considered:

---

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

---